

Tornadoes ^[1]

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by Peter J. Robinson
University of North Carolina at Chapel Hill, [Department of Geography](#) ^[2]
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North Carolina's tornadoes are not able to compete with those of the central USA in frequency or intensity, Rarely exceeding F2 on the Fujita scale ^[3] (shown in Table A). But sometimes they are features of weather which have major impacts. Most tornadoes are associated with isolated thunderstorms, and they tend to occur as small, relatively weak and isolated events. So their impact is usually minimal and local, with the amount of damage or injury caused depending greatly on exactly where the event occurs. So, in general, there are between 10 and 20 tornado days per year, most days having one or perhaps two tornadoes (Table 6). At irregular intervals there are more severe outbreaks, with several tornadoes spawned by a single weather system, and with more widespread impacts. [Hurricane Floyd](#) ^[4], for example, created 20 tornadoes along the coast on September 15, 1999.

TABLE A: THE FUJITA TORNADO DAMAGE SCALE		
F0	< 73	Light damage. Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1	73-112	Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2	113-157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
F3	158-206	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5	261-318	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 109 yds; trees debarked; incredible phenomena will occur.
*WINDS: Do not use F-scale winds literally. These precise wind speed numbers are actually guesses and have never been scientifically verified. Different wind speeds may cause similar-looking damage from place to place-even from building to building		
Source: Storm Prediction Center, NWS, NOAA		

Table 6. Summary of annual tornado occurrence in North Carolina between 1998 and 2002						
Category	Year					
	1998	1999	2000	2001	2002	
F5						
F4	1	--	--	--	--	--
F3	2	--	--	--	--	--
F2	6	9	--	--	--	1
F1	27	8	1	2		4
F0	30	21	23	11		6
Water Spout	14	3	1	3		--
Other	4	8	2	--		4
Total	84	49	27	16		15
Deaths	2	1	0	0		0
Injuries	53	38	1	3		0
Property Damage(\$M)	92.732	13.672	0.930	0.316		3.081
Crop Damage(\$)	75000	0	0	0		0
# of Days	29	9	16	10		9

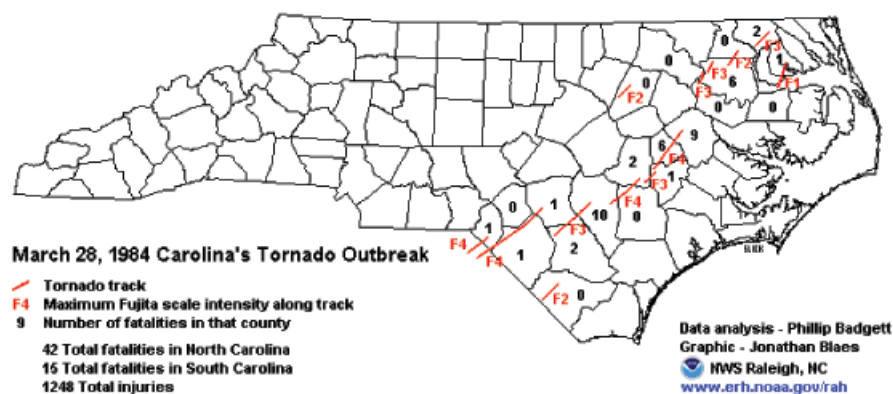
*Other = dust devils & funnel clouds

The two major outbreaks of the last few years occurred during 1998. Of the 29 days with tornadoes that year, 20 of them had a single event. None of these had an intensity greater than F1, most did less than \$25,000 in damage and only one produced any injuries. On the other hand, 10 storms occurred on March 20 when a large, well-organized line of thunderstorms drifted northeastward across the northern Piedmont. Even then, only one, an F3 storm, did serious damage as it traveled 12 miles from southwest of [Mayodan](#) ^[5] to just

northwest of Eden in [Rockingham County](#) ^[6]. Approximately 600 residences and numerous businesses were destroyed or damaged, including one industrial building where damage was estimated at \$25M. Two deaths and numerous injuries were also caused. The second and larger outbreak occurred a couple of months later, this time associated with a series of thunderstorms generated in eastern Tennessee. They brought hail, high winds and rain on a swath from [Madison County](#) ^[7] through [Forsyth County](#) ^[8], with at least 20 individual tornadoes involved. The severest was an F4 in rural [Caldwell county](#) ^[9], which caused two injuries but did relatively little damage. In contrast, an F3 storm went through a housing subdivision near Clemmons, Forsyth County, destroying several houses and damaging hundreds more, giving property damage totaling over \$50M and at least five injuries.

No part of the state is immune from tornadoes, although the main events of 1998 affected only parts of the mountains and the Piedmont. However, the Coastal Plain, as Figure 2.18 in *The North Carolina Atlas* indicates, is the major tornado location. That region was certainly the location of the largest single outbreak on record. And this was an outbreak worthy of the mid-west (Figure 13). The system started in South Carolina, entered the state over [Union County](#) ^[10] around 5 p.m. on the afternoon of March 28, 1984. At 9:20 p.m. that night, it died away as it moved over [Chowan](#) ^[11] and Perquimans Counties into Virginia. In North Carolina, 25 tornadoes between them did over \$325 million dollars worth of damage, killed 40 citizens and injured 400 others. In terms of human life, this was one of the greatest natural disasters the state has ever known.

Figure 13. The 1984 Tornado Outbreak



References and additional resources:

NC LIVE resources ^[12] on tornados in NC.

Orr, Douglas Milton, and Alfred W. Stuart. 2000. *The North Carolina atlas: portrait for a new century*^[13]. Chapel Hill: University of North Carolina Press.

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State Climate Office of North Carolina.

State Library and State Archives Digital Collections ^[16].

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Robinson, Peter J. ^[18]

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